REMARKS

[001]   The Final Office Action cites the following art: U.S. Patent Number 6,397,207 to Bleizeffer et al (hereinafter Bleizeffer), U.S. Published Patent Application Number 2004/0003004 to Chaudhuri et al (hereinafter Chaudhuri), and U.S. Patent Number 5,960,428 to Lindsay et al (hereinafter Lindsay).

[002]   Claims 1-19 are pending. Claims 1, 8, and 14 are independent claims. Claims 1-5, 8-11, and 14-17 remain rejected under 35 USC §103(a) as unpatentable in view of Bleizeffer in combination with the Chaudhuri. Claims 6, 7, 12, 13, 18, and 19 are rejected under 35 USC §103(a) as unpatentable in view of Bleizeffer in combination with Chaudhuri and Lindsay.

[003]   Applicants do hereby amend Claims 1, 4, 5, 8, 11, 14 and 17. Claims 2, 9, 10, 15, 16, and 18 are canceled. No new claims have been added. No new subject matter has been added. Applicants request reconsideration in view of the discussions held on the telephone interview, these remarks, and the submitted amendments.

TELEPHONE INTERVIEWS AND AMENDMENTS

[004]   Applicants would like to thank Examiner Leroux for the telephone interview held on March 20th 2007 and subsequent discussion held April 3rd 2007 between Examiner Leroux and Applicants' representative David McKenzie. In that interview, the parties discussed the primary prior art references (Bleizeffer, Chaudhuri, and Lindsay) which served as the basis for the 35 U.S.C. §103(a) rejections in the Final Office Action. Examiner Leroux was very helpful in understanding where the claim language could be clarified. Applicants submitted a set of proposed amendments for consideration, discussed below, based on those suggestions.

[005]   Applicants' representative believes that significant progress was made as the discussion clarified the operation of the invention based on the terminology used in the claims. Specifically, the element of "selecting a sub-set of queries from the workload" was discussed. Based on this discussion a suggestion was made that the invention can be clarified by including that the selection is automatic, meaning no user involvement in the selection of the sub-set. Consequently, Claims 1, 8, and 14 include the limitation that the selection is performed automatically. Support for this amendment is found on page 2, lines 1-12, and on page 6, lines

12-14 where the selection operation is described as being performed by the workload compression system 102 of Figure 1, without user input for the selection step.

[006] Next, the balancing by the present invention of the overhead in performing compression against the benefit of performing the compression of certain queries in the workload was discussed. Specifically, the phrase "aggregate estimated cost of execution for the selected queries…," from original Claim 2, was discussed. Applicants' representative explained that to those in the art and based on dictionary definitions this phrase is understood to mean "queries [of the sub-set]…that together have a total estimated cost of execution." The term aggregate is defined as "formed by the collection of units or particles into a body, mass, or amount." http://www.m-w.com/dictionary/aggregate. Consequently, the clarifying phrase "the sub-set of queries comprising one or more queries from the workload that together have a total estimated cost of execution less than or equal to according to a threshold level" was included in Claims 1, 8, and 14 to clarify the invention. Support for this amendment is found in Claim 2 as originally filed and in the specification on page 6, lines 1-11, lines 23-29 and Figure 2, step 220, and Figures 3A-3B.

[007] In addition, Claim 1 is amended to recite that the "wherein the queries of the workload are in decreasing rank order based on an estimated cost of execution for each query and selection of the sub-set of queries examines queries in the rank order from the higher estimated cost of execution toward the lower estimated cost of execution." This amendment clarifies the process of selection. Since an estimated cost of execution has already been determined, this element orders the queries in the workload according to these estimated costs. Then, the selection process can begin with a query having a higher estimated cost of execution and progress toward those with a lower estimated cost of execution. As explained above, as each query in the rank order is selected the total estimated cost of execution progresses towards the threshold. Since the threshold is between about 40% and about 65% the selection step will never have to examine each query of the workload to reach the threshold. Thus, time and overhead is saved in not having to examine each query of the workload during the query sub-set selection step. This amendment is supported by the subject matter of originally filed Claim 2 as well as in the specification page 6, lines 12-27, and Figure 3A. Similar amendments are made to Claims 8 and 14.

[008]   Finally, Claim 1 is amended to recite that the "the threshold level ~~being~~ comprising a ~~function~~ percentage of the total estimated cost to execute all the queries of the workload, the percentage comprising between about 40% and about 65%." This amendment clarifies the advantage of the present invention in properly balancing the overhead in determining which queries to compress with the benefits to be gained by performing the compression. A threshold percentage of approximately 40% to approximately 65% represents an optimal benefit. Thresholds below about 40% may result in the benefits not outweighing the costs and thresholds above about 65% may result in the costs of using the present invention outweighing simply performing compression on all the queries of the workload. Thus, the recited range for the present invention provides optimal benefits and minimal costs. This amendment is supported by the subject matter of the specification page 6, line 5, 23, page 7, lines 27-28, and Figure 3A. Similar amendments are made to Claims 8 and 14.

[009]   Claims 4, 5, 11 and 17 are amended to resolve typographical errors.

REJECTION OF CLAIMS 1-5, 8-11 AND 14-17 UNDER 35 USC § 103(a)

[010]   Claims 1-5, 8-11, and 14-17 are rejected under 35 USC §103(a) in view of Bleizeffer and Chaudhuri. Applicants traverse this rejection in view of the discussions and amendments explained above. Applicants submit that Claim 1 is representative of the subject matter recited in independent Claims 8 and 14. Therefore, Applicants response will focus on Claim 1 with the understanding that responses for Claims 8 and 14 would follow a similar vein.

[011]   Applicants submit that Bleizeffer and Chaudhuri fail to teach each element of amended Claims 1, 8, and 14 either alone or in combination.

[012]   Most notably, Bleizeffer and Chaudhuri fail to teach or suggest:

> "automatically selecting a sub-set of queries from the workload, the sub-set of queries comprising one or more queries from the workload that together have a total estimated cost of execution less than or equal to ~~according to~~ a threshold level, the threshold level ~~being~~ comprising a ~~function~~ percentage of the total estimated cost to execute all the queries of the workload, the percentage comprising between about 40% and about 65%, wherein the queries of the workload are in decreasing rank order based on an estimated cost of execution for each query and selection of the sub-set of queries examines queries in the rank order from the higher estimated cost of execution toward the lower estimated cost of execution;"

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[013] Bleizeffer relates to a tool for a user to use in reviewing reports of explain data for SQL queries. The software does not select the queries that will be examined. See Applicant's response mailed November 13, 2006, Para. 9. Therefore, Bleizeffer fails to teach selecting a sub-set of queries that together have a total estimated cost of execution less than or equal to a threshold. The Examiner relies on Bleizeffer for a concept of a query identified by a user as having a higher-than-average statement cost. See Office Action mailed December 15, 2006, page 8. However as the interviews clarified, the present invention does not deal with an average statement cost for the queries in the workload. Instead, the present invention examines a ranked set of queries and determines, based on estimated statement costs, a sub-set of those queries that together have a total estimated cost of execution less than or equal to a threshold. Bleizeffer fails to teach or suggest such a selection process.

[014] In addition, Claim 1 recites a range for the threshold between about 40% and about 65% within which the threshold will lie. Bleizeffer fails to teach or suggest such a range. Finally, Claim 1 teaches that the sub-set is selected by examining the queries in the rank order from a higher estimated cost of execution toward a lower estimated cost of execution, until the threshold requirement is met. Bleizeffer fails to teach or suggest such ranking the queries or selection of a sub-set based on the ranked queries.

[015] Chaudhuri fails to cure the missing teachings in Bleizeffer. Chaudhuri teaches an iterative DB tuning tool that performs work during time slices to avoid negatively affecting performance of a DBMS. See Applicant's response mailed November 13, 2006, Para. 10-11. Chaudhuri addresses the problem of a DB tuning tool in which workload compression execution time is unpredictable and it is desirable that workload compression complete within a known time period.

[016] However as explained in previous responses, Chaudhuri fails to teach or suggest examining all the queries of a workload. See Applicant's response mailed November 13, 2006, Para. 15-16. Therefore, there is no way for Chaudhuri to "select[ing] a sub-set of queries from the workload…comprising one or more queries …that together have a total estimated cost of execution less than or equal to … a threshold level, …wherein the queries …are in decreasing rank order based on an estimated cost of execution for each query and selection of the sub-set of queries examines queries in the rank order from the higher estimated cost of execution toward

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the lower estimated cost of execution." Chaudhuri can not examine a ranked set of queries if Chaudhuri teaches against considering all the queries of the workload during a selection operation.

[017]   Consequently, Applicants submit that neither Bleizeffer nor Chaudhuri teaches or suggests each element of the pending claims, as amended. Applicants request that this rejection be withdrawn.

REJECTION OF CLAIMS 6, 7, 12, 13, 18 AND 19 UNDER 35 USC § 103(a)

[018]   Claims 6, 7, 12, 13, 18, and 19 are rejected under 35 USC §103(a) as unpatentable in view of Bleizeffer in combination with Chaudhuri and Lindsay. Applicants traverse this rejection. The Lindsay reference is discussed in previous responses and fails to cure the defects described above in relation to Bleizeffer and Chaudhuri. Applicants note that Claim 18 is canceled. Applicants submit that Claims 6, 7, 12, 13, and 19 depend from amended Claims 1, 14, and 18. Therefore, Applicants submit that Claims 6, 7, 12, 13, and 19 are allowable for the same reasons explained above in relation to Claims 1, 14, and 18.

CONCLUSION

[019]   Thus, Applicants submit that no art of record teaches or suggest "automatically selecting a sub-set of queries from the workload…comprising one or more queries …that together have a total estimated cost of execution less than or equal to … a threshold level, …wherein the queries …are in decreasing rank order based on an estimated cost of execution for each query and selection of the sub-set of queries examines queries in the rank order from the higher estimated cost of execution toward the lower estimated cost of execution" as recited in amended Claims 1, 14, and 18. Therefore, Applicants submit that the application is in condition for allowance. In the event any questions or issues remain that can be resolved with a phone call, Applicants respectfully request that the Examiner initiate a telephone conference with the undersigned.

Respectfully submitted,

_/David J. McKenzie/_____

Date:_ April 4, 2007 _
Kunzler & McKenzie
8 East Broadway, Suite 600
Salt Lake City, UT 84111
Telephone (801) 994-4646
Fax (801) 531-1929

David J. McKenzie
Reg. No. 46,919
Attorney for Applicant